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Health & Wholeness:
The Vision of Innate Response

In this interview, Matt Laughlin, editor-in-chief of UnifiedHealth, talks with James Doherty, director of the professional division at BioSan Laboratories, makers of Innate Response Formulas and publisher of UnifiedHealth, about nutrition, science and the supplement industry.

UH (*UnifiedHealth*™): I've heard you lecture and am always struck by your passion about nutrition. How did this begin for you?

JD (*James Doherty*): I have to credit my Grandfather. I have this vivid memory of playing outside and seeing my Grandfather pull up with his truck and a rototiller in the back. I think I was eight years old. I remember asking him what the rototiller was for and he said, well Jimbo, all men have gardens and it's time you have one of your own. (Laughter) My Grandfather has been such a pivotal and exceptional person in my life and he was the first one who told me I could be a man, not just a boy. And if Gramps said a garden was the path to that, then that's what I was going to do!

UH No kidding. (Laughter) You were fortunate!

JD Absolutely. With my Grandfather's guidance, I was fortunate enough to have a full garden - beans, squash, tomatoes; everything. I got to witness and participate in the growth of the foods I planted; to literally reap what I sowed. That first year was tough; weeds over took the whole garden. But gradually, by the time I was thirteen years old, I had entered 16 or 17 different events at the state fair and won several of them.

UH Early on, you had a strong appreciation for whole foods, and where they come from. Where did that lead you?

JD My Grandfather planted the seed, so to speak, and this continued to develop while I was in college. Two of my favorite things were exercise and studying. I was really committed to exercise and proper nutrition; at least what I thought was proper nutrition. (Laughter) I worked out two hours a day, five or six days a week mostly weight lifting. I wanted to start taking a multi-vitamin and went to my local health food store. It was daunting to read all the ingredients, such as 'ascorbic acid' or 'pyridoxine hydrochloride.' When I asked the store owner what those were, he explained those were the forms of vitamins they used. But something just didn't sit right with me.

James Doherty has over ten years experience in the natural products industry coupled with extensive training in biology and chemistry. Through these years of study, James has seen his beliefs and passion for whole food nutrition as the optimal source of nutrition turn into scientific reality. He has lectured throughout the US and in Canada on the complex science of whole food nutrition, uncovering the benefits of whole food supplementation with a focus on vitamin manufacturing, peer-reviewed studies, whole food as dynamically evolved sets of interacting food constituents, and the limits of reductionist approaches that seek to identify single nutrient compounds.

I was fortunate to have the foundation I had, that initial love of gardening; foods I grew and could touch. I was also fortunate to have had many biology and science courses in my background. But it really wasn't until I started working for BioSan in 1996 that I understood the chemical structures of vitamins and minerals, and how they were put together and manufactured. I finally understood that the common vitamin product was often not from food; and further, were still labeled natural whether or not they were from food. That was just a couple of years after college and into my personal investigation and I am still so passionate about working in the Alternative Medicine field.

UH What are some of the biggest changes you've noticed since you began working in the field?

JD It's exciting! When I first started out, most people believed there wasn't a difference between a vitamin from a food and a vitamin that was isolated. And here I was trying to communicate to people that there is a difference. For example, ascorbic acid has a very similar chemical structure as glucose and is, in fact, manufactured from glucose, a refined sugar. But at that time, there weren't any long-term studies to refer to; there weren't any scientific references. I was teaching with concepts and metaphors, such as how a watch needs every part to function properly or an engine needs all the parts to function effectively as a whole. Practitioners who worked with whole food nutrients understood the value of the concept and saw the clinical benefits. But it's only in the last five to seven years that research has emerged which is validating what clinicians already knew in practice.

All of the research on whole foods is validating the wisdom of these concepts. There is validation now that smaller dosages from whole foods are exponentially better in terms of health and prevention, than are isolated, high potency vitamins. The isolated, high potency vitamins lack the intrinsic fabric of the phytonutrients and food factors that empower nutrients in the whole food to function optimally as a complete unit. High potency vitamins are certainly useful in many therapeutic contexts, but as a preventive, long-term foundational approach, the research is pointing to whole food. It's exciting to see the shift happening in which more practitioners are realizing the importance of whole food nutrition as a foundation to any therapeutic program for their patients.

UH This makes sense intuitively and the science is beginning to demonstrate that wisdom.

JD Sure. Take the understanding of vitamin E, which has evolved over the years. Initially, they thought d-alpha tocopherol worked as a functional unit by itself to help prevent cardiovascular disease. Yet, several years later they thought it was the mixed tocopherols that, as a group, were the more functional, beneficial unit. Some years after that they thought it wasn't just the tocopherols, but the tocotrienols that come into play, and later still, they recognized there are other minerals that are important, such as selenium. It reminds me of a concept or distinction that really resonates with me; the difference between deductive and inductive reasoning. All of that inductively viewed (from whole to part) research, if you will, didn't provide the answer about vitamin E. At each point in time, it was thought of as being correct, but in actuality, we realized that none of those were. If we had to look at it deductively, and look to historical data, for example, we would have noted that communities of people subscribing to the Mediterranean diet have lower occurrences of cardiovascular disease. That kind of reasoning would be more applicable as a realistic protocol, and a more realistic assessment of the ideal source and nature of the nutrients we consume for optimal cardiovascular and overall health.

UH How does this apply to other more well-known or well-studied vitamins, such as vitamin C? I remember as a child hearing about the importance of taking vitamin C.

JD Vitamin C is another great example. James Lind conducted a study on British sailors that set the stage for the eventual discovery of vitamin C. What was especially amazing was he created a control group. One of the first clinical experiments, his study was called the Treatise of Scurvy, and demonstrated citrus fruits cured scurvy. It's interesting to note that when he presented this research to the British Academy of Sciences it was initially rejected. Lind's approach was deductive, and did not fall within the predominantly inductive scientific method. Though he solved the problem by curing scurvy with citrus fruit, he couldn't single out why this worked. It wasn't until after James Lind died that the British Academy of Sciences accepted his work.

UH And his work set the stage for the discovery of vitamin C?

JD Yes. Albert Szent-Györgyi, my favorite researcher, picked up where James Lind left off. What is inspiring about Albert Szent-Györgyi is that

he didn't want to only cure scurvy - he wanted to find a way to prevent it. His wife and daughter both died at an early age due to cancer and he really wasn't simply looking for accolades from researchers, but for health discoveries that went beyond preventing scurvy alone.

Building from Lind's research, Szent-Györgyi was able to cure scurvy with limes. He then switched to sweet red pepper extracts because red peppers were more plentiful in his native land of Hungary. When he first administered a sweet red pepper extract he found it worked, but it took several months. Later, he concocted a solid herbal extract, a concentrated paste of the sweet red peppers; the scurvy patients recovered quickly. He isolated that food concentrate down to ascorbic acid, what is commonly referred to as vitamin C. When he used this isolated ascorbic acid, it didn't work. The isolate wasn't able to cure scurvy, which he published in his research papers. He won the Nobel Prize for isolating ascorbic acid, even though it didn't work.

Szent-Gyorgyi's work was accepted because it was inductively based; but what's important to note is how flawed Szent-Gyorgyi held this approach to be. He went to great lengths to draw attention to this, imploring the scientific community in his Nobel Prize speech to discontinue research on these isolated components and to focus instead on food. Unfortunately, no one else followed up on that research except Szent-Györgyi. He later discovered the bioflavonoids, which are key components of vitamin C utilization.

> *"My scientific career was a descent from higher to lower dimensions led by a desire to understand life. I went from animals to cells, from cells to bacteria, from bacteria to molecules, and molecules to electrons. The story has its irony, for molecules and electrons have no life at all. On my way, life ran out between my fingers."*
>
> Albert Szent Gyorgyi
> The Living State
> Academic Press – 1972

UH So, there was scientific recognition that vitamin C requires other food components to work optimally.

JD Yes. Another of my favorite researchers, Casimir Funk, held the same position. Aside from being the guy with the coolest name in nutrition, he is known for discovering the first vitamin and the whole concept of vitamins. Early on, he also realized that the isolates never worked as well as they did in food because they were missing the other components. When he isolated B1, he called it a vital amino acid. The name was shortened to vital amines or vitamines; the e was dropped when it became clear not all vitamins were amines. Funk realized that the vitamin didn't work as well when it was missing the protein attachment used in all metabolic processes for vitamins. We now know that many of the minerals and vitamins need to be naturally chelated to components of food for proper uptake and utilization. Some forms that are chelated can be actively transported, but other forms can not.

UH You mentioned earlier that isolated nutrients are given chemical names; in the case of vitamin C, what's the term when it's delivered in a food state?

JD That's one of the toughest questions to answer, and a question we get very often. There is no chemical name for vitamin C in oranges, as there isn't for folate in spinach. It's simply vitamin C; no one knows the chemical structure because it is attached to so many other components. When someone asks me what form of vitamin C we deliver in Innate Response Formulas, the most technical answer I can give them is food vitamin C. The top chemists in the world don't know how to term it, except 'food'. In a study published in the *Journal of Nature*, it was found that 5.7 mg of vitamin C from apples is equivalent to the antioxidant capacity of 1,500 mg from vitamin C by itself. The reason for this is because vitamin C is attached to a larger fabric of phenolic compounds, and many other factors that make it work better. That fabric and everything connected to it includes too many factors to isolate out the form is in which it is being delivered.

UH What are some of the other challenges you encounter in the industry with regard to understanding whole food nutrients or supplements?

JD One of the challenges in understanding whole food nutrients are tablets. Most whole food vitamins are tablets, but many people presume that capsules are a better form of delivery. That is not typically the case. It depends on many factors. What's most important to understand is the form of the nutrient,

not the form of delivery. One of the biggest myths is due in part to a demonstration in which a capsule is placed in a cup of water and a tablet in another cup of water. Wait 15 minutes and of course, the capsulated product dissolves while the tablet hasn't yet. This demonstration doesn't reflect the context of human physiology and digestion. What I suggest for people to do is to recreate that experiment by taking a small sprig of broccoli, about the size you could swallow, and placing it in water. I'll ask them to give me a call when it disintegrates. (Laughter) Of course, it's not going to break down. These "tests" that people do with water or vinegar are not really true tests for measuring efficacy of a product. Digestion, as we know, involves peristalsis and the presence of other gastric juices to help break down that tablet, as well as the broccoli.

UH Would you comment further on the different applications between whole food nutrients and isolated vitamins and minerals?

JD Sure. There are actually a lot of things that are important to realize with regard to the differences in application between whole food nutrients and isolated supplements. For example, people may take higher doses of isolated calcium to prevent muscle cramps; however, that's a dosage you won't achieve with calcium from whole food supplements. Based on historical data, calcium from whole foods at lower dosages has proven to be more efficacious and functional than many of those isolated forms of calcium with regard to health and wellbeing. This is corroborated in research on the Bantu tribes of Africa, women in Argentina, as well as many other ethnic groups. It's verified in each case that taking the more moderate dose of calcium with other minerals and vitamins in food sources is as effective, or more effective, than diets in which the predominant source of calcium is high-dose, isolated supplements.

UH So, the benefits of whole food nutrients are more long term and preventive in nature?

JD Yes. As we talked about, vitamins were initially isolated and utilized for short-term nutritional deficiencies. If you didn't have enough ascorbate, for instance, you had scurvy. Today, however, there are not many people walking into health clinics or doctor's offices with scurvy or beriberi. They're walking into clinics with cardiovascular disease and cancer, metabolic syndrome and many other conditions. Research has demonstrated that these kinds of disease conditions are not necessarily due to a specific vitamin deficiency, but instead, they're due in part to a broader, more pervasive deficiency in many, many vitamins and phytonutrients from whole foods which we're no longer getting in our diet. So, whole food supplements not only provide the essential vitamins but also provide all those other components that are intrinsic to a whole food diet, which are, in turn, a great foundation for health.

UH And as I understand it, you're talking about hundreds or thousands of food compounds.

JD Exactly. A lot of people look at the potency of whole food and wonder about the lower dose. We may deliver, for instance, 200 mg of vitamin C instead of 1,000. But if you look at it in a different context, you would see that instead of getting one vitamin at an extremely high potency, you're getting hundreds upon hundreds, or thousands upon thousands of different vitamins, minerals and phytonutrients. You're getting some of each one, which is a broader potency instead of a higher potency. We know, for instance, that a tomato has well over 10,000 different vitamins, minerals and phytonutrients. We're talking about a substantial array of phytonutrients and other food components that many people are no longer getting in their diet because they don't eat as high a quality of food. We can look to our foods again: Is it more beneficial to include dozens of oranges in our daily diet or to include an orange as well as tomatoes and broccoli and legumes and so on? We all instinctively know the answer to that.

UH What makes Innate unique?

JD Innate has several differences with regard to what you're actually receiving. A lot of companies claim to be whole food, but when you look at it closer, you usually see those two-part names, such as ascorbic acid, or pyridoxine hydrochloride, added to a base of food. Those are a physical mix, but not true whole food. Innate guarantees 100% whole food and we say so right on the bottle.

Because we're using 100% whole food, our labels are different. If you look at a label, you'll note two numbers: The first is the milligram potency of the total amount of food delivered. In other words, the first number is the amount of orange extract we're using in the case of vitamin C, for example, we may use 1,000 mg of orange extract. The number to the right of that shows the amount of vitamin C in the extract, 250 mg. We are able to create an orange concentrate to provide 25% vitamin C. The other 750 mg of that total 1,000 is all the other valuable phytonutrients, food compounds and food factors that make the vitamin whole food.

Another difference is that we're a truly vertically integrated company. There are approximately 1,400 different vitamin companies in the US today. A staggering amount, approximately 95% of them use contract manufacturers. Another 4% or so manufacture their own products. But less than 1% actually manufacture their own raw materials. At Innate, we manufacture our own raw materials. Everything arrives at our facility, fresh and frozen. We process through a cold process that allows us to mill it while it is frozen. We then dry it with a lower temperature drying process called refractance window drying, which has a self-limiting process that automatically shuts off the drying process once the food reaches 4% moisture.

UH And that maintains the integrity of the food?

JD Yes, it does. Several different food processes, such as spray drying (extreme heat) or freeze drying (extreme cold), will destroy some of the volatile food compounds, like chlorogenic acid or some of the other factors in spinach, for instance. But with refractance window drying you can preserve those. In fact, we can make a cranberry concentrate that is concentrated to contain a higher amount of anthocyanins than what you would get in either of the other two methods.

UH Why is the product line called 'Innate'?

JD When you think about what whole food nutrients do, and how they work in harmony, or innately with the human physiology, allowing the body to do its job, 'Innate' seemed like the best word to capture this. The potency and composition of whole foods are more aligned with what the body naturally receives from food sources and work in alignment with how the body needs nutrition. Innate communicates that.

UH What can you say to our readers about your vision of publishing UnifiedHealth?

JD UnifiedHealth was a long-time dream of mine. I have had the opportunity to attend conventions with many different kinds of healthcare practitioners - chiropractors, naturopathic physicians, medical doctors, nutritionists, clinicians of other modalities. What has really struck me over the years is to observe how closely related the underlying health concepts really are across the professions. While different in some respects, a lot of the principles and concepts between naturopaths and chiropractors, for instance, seem to share common threads. That's really at the heart of our publication – our intention to create a professional forum for practitioners unified in their commitment to health and wellness. Part of my dream was to create a forum in which valuable research and information that doesn't seem to be published elsewhere could be shared among practitioners of different orientations; to really help create a larger, inclusive picture of health and wholeness.

UH The publication is very much in alignment with Innate's commitment to wholeness on all levels.

JD Absolutely. Part of our overall mission is to find a way to solve healthcare practitioner's and their patient's needs; to help clinicians be more successful in their protocols and to be more successful in patient outcomes. It's really a win-win for everyone. UnifiedHealth is more than an opportunity for us to support the value of whole food nutrition and to create more exposure for our product line; it's also an incredible opportunity to support healthcare professionals in their work and vision. Our hope is that Innate and UnifiedHealth contribute to the health and wellbeing of patients and practitioners alike.

UH What's on the horizon for Innate?

JD Our practitioners are looking for support and there is so much we're developing to fulfill this. Among the projects we're working on is updating the Innate and UnifiedHealth websites and introducing a biweekly e-newsletter in January. I work with an incredible team of people and together we work in partnership with an extraordinary professional community. Innate is committed to health and wholeness; our goals continue to spring from this starting point.